

WHAT IS CLAIMED IS:

1. A method of forming a substantially haze-free BST film over a substrate assembly, comprising:

forming an electrode material over the substrate assembly;

forming a nucleation layer over the electrode material, wherein the nucleation layer is a metal; and

forming a BST film over the nucleation layer.

2. The method of Claim 1, wherein the nucleation layer is a member of the group consisting of Ti, Nb, and Mn.

3. The method of Claim 1, wherein the electrode material is Pt.

4. The method of Claim 1, wherein the nucleation layer is formed to have a thickness of less than about 50 Å.

5. The method of Claim 1, wherein the BST film is deposited at a rate of between about 10 and about 100 Å/min.

6. The method of Claim 1, wherein the BST film is deposited at a rate of about 80 Å/min.

7. The method of Claim 1, wherein the BST film is formed such that it contains between about 50 and about 53.5 atomic percent Titanium.

8. The method of Claim 7, wherein the BST film is formed such that it contains about 52 to 53 atomic percent Titanium.

9. A method of forming a substantially haze-free BST film over a substrate assembly, comprising:

forming a first electrode material over the substrate assembly;

forming a nucleation layer over the first electrode material;

forming a BST film over the nucleation layer;

forming a second electrode material over the BST film;

wherein the nucleation layer is a metal selected from the group consisting of:

Ti, Nb, and Mn.

10. The method of Claim 9, wherein the nucleation layer is formed directly over the first electrode material.

11. The method of Claim 9, wherein the resulting BST film comprises between about 50 and about 53.5 atomic percent titanium.
12. The method of Claim 9, wherein the resulting BST film comprises between about 52 and about 53 atomic percent titanium.
13. The method of Claim 9, wherein the BST film is between about 150 and about 300 Å thick.
14. The method of Claim 9, wherein the BST film is deposited at a rate of about 80 Å/min.
15. The method of Claim 9, further comprising raising the temperature of the substrate assembly to about 500 to 550 °C.